

Translation

PATENT COOPERATION TREATY

PCT/DE2002/004509



PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference IT500WO	FOR FURTHER ACTION See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)	
International application No. PCT/DE2002/004509	International filing date (day/month/year) 05 December 2002 (05.12.2002)	Priority date (day/month/year)
International Patent Classification (IPC) or national classification and IPC G02B 6/42		
Applicant INFINEON TECHNOLOGIES AG		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.

2. This REPORT consists of a total of 6 sheets, including this cover sheet.

☒ This report is also accompanied by ANNEXES, i.e., sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

These annexes consist of a total of 5 sheets.

3. This report contains indications relating to the following items:

- I ☒ Basis of the report
- II ☐ Priority
- III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- IV ☐ Lack of unity of invention
- V ☒ Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI ☐ Certain documents cited
- VII ☐ Certain defects in the international application
- VIII ☐ Certain observations on the international application

Date of submission of the demand 15 June 2004 (15.06.2004)	Date of completion of this report 21 February 2005 (21.02.2005)
Name and mailing address of the IPEA/EP	Authorized officer
Facsimile No.	Telephone No.

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

PCT/DE2002/004509

I. Basis of the report

1. With regard to the elements of the international application:*

- ☐ the international application as originally filed .
- ☒ the description:
 pages _____ 1-14 _____, as originally filed
 pages _____, filed with the demand
 pages _____, filed with the letter of _____
- ☒ the claims:
 pages _____, as originally filed
 pages _____, as amended (together with any statement under Article 19
 pages _____, filed with the demand
 pages _____ 1-20 _____, filed with the letter of _____ 04 January 2005 (04.01.2005)
- ☒ the drawings:
 pages _____ 1/3-3/3 _____, as originally filed
 pages _____, filed with the demand
 pages _____, filed with the letter of _____
- ☐ the sequence listing part of the description:
 pages _____, as originally filed
 pages _____, filed with the demand
 pages _____, filed with the letter of _____

2. With regard to the language, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item. These elements were available or furnished to this Authority in the following language _____ which is:

- ☐ the language of a translation furnished for the purposes of international search (under Rule 23.1(b)).
- ☐ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of the translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any nucleotide and/or amino acid sequence disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. ☐ The amendments have resulted in the cancellation of:

- ☐ the description, pages _____
- ☐ the claims, Nos. _____
- ☐ the drawings, sheets/fig _____

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).**

* Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rule 70.16 and 70.17).

** Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

PCT/DE 02/04509

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Claims	6-20	YES
	Claims	1-5	NO
Inventive step (IS)	Claims	9	YES
	Claims	6, 7, 8, 10-20	NO
Industrial applicability (IA)	Claims	1-20	YES
	Claims		NO

2. Citations and explanations

1. The assessment below of the novelty and inventive step of the claimed subject matter is based on the following statements under PCT Article 6.

1.1 The use of the wording "optical transmission and/or reception arrangement having at least one transmission component and/or at least one reception component" in claim 1 also lays claim to an embodiment comprising either a transmission or a reception component.

In the characterising part of the claim, however, the wording "the transmission component and the reception component are located outside the plane..." is used. This wording gives the impression that the arrangement comprises in all cases a transmission component and a reception component. For this reason, the present claim 1 is unclear.

For the purposes of the present analysis, it is assumed that the claimed arrangement can comprise only a transmission element or only a reception component, as suggested in the preamble of the claim.

- 1.2 The expression "planar optical circuit having at least one integrated waveguide" also includes laser diodes in which light is guided in the amplifier material by index or amplification guidance.
2. This report makes reference to the following documents cited in the international search report:
- D2: EP-A-0 826 995 (HEWLETT PACKARD CO), 4 March 1998 (1998-03-04)
- D3: DE 195 19 486 A (BOSCH GMBH ROBERT), 28 November 1996 (1996-11-28)
- D4: DE 44 22 322 C (ANT NACHRICHTENTECH), 14 September 1995 (1995-09-14)
- D5: GB-A-2 162 336 (MAGNETIC CONTROLS CO), 29 January 1986 (1986-01-29)
- D6: US-A-4 726 645 (YAMASHITA JUNICHIRO ET AL), 23 February 1988 (1988-02-23)
3. The present application does not meet the requirements of PCT Article 33(1) because the subject matter of claims 1-5 is not novel (PCT Article 33(2)).
- 3.1 D2 discloses an optical transmission and/or reception arrangement having at least one transmission component or at least one reception component (41), as well as a lens (34) for optically coupling the transmission component or the reception component to an optical fibre that can be secured to the transmission and/or reception arrangement, the arrangement comprising a planar optical circuit (31, 39) having at least one integrated waveguide, light being decoupled from

the waveguide of the planar optical circuit and led to the reception component (41), the reception component being located outside the plane in which the integrated waveguide is formed in the planar optical circuit (31, 39), the lens (34) being arranged on the planar optical circuit and light being guided between the lens (34) and the reception component (41) in the integrated waveguide of the planar optical circuit.

For this reason, the subject matter of the present claim 1 is not novel over the teachings of D2.

3.2 Further claimed features that are disclosed in D2:

- pyramid-shaped recess in the surface of the planar optical circuit (claims 2, 3): D2, figures 3 and 5.
- spherical lens (claim 4): D2, figure 3.
- lens adjacent to the front surface of the waveguide (claim 5): D2, figure 3. For this reason, the subject matter of the present claims 2-5 is not novel over D2 either.

4. Moreover, it appears that dependent claims 6-8 and 10-20 only define minor alterations in design of the optical arrangement which are known to a person skilled in the art or are normal trade practice which does not require any inventiveness (PCT Article 33(3)).

In this respect, reference is made to the following relevant disclosures in the prior art:

- D2: mirror surfaces having a wavelength-selective coating and an oblique arrangement (claims 8 and

10): 36, figure 3;

- D3: wavelength-selective detection, deflection and decoupling means (claims 8 and 20): column 2, lines 4-16;
- D3: arrangement of a planar circuit (R) on the top side of a substrate (T) and of an optoelectronic component (E) on the underside of the substrate (claims 11-13): figure 2 and corresponding passages;
- D4: reception device for the optical fibre or a ferrule, adjustable metal sleeve (claims 14-17): page 5, lines 6-23;
- D5: index-adapted fixing means (claims 6 and 18): page 2, lines 98-105
- D6: planar convex lens for coupling (claim 7): figures 11 and 12.

5. However, none of the available document appears to suggest the use of Mach-Zehnder components and deflection prisms for decoupling in a wave-length selective manner the radiation from the waveguide and for distributing it among various detectors.

For this reason, the subject matter of the present claim 9 is considered novel and inventive.